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|---|---|
| DEL SOLE, JOSEPH S | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1722 | |

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/727,146 | STOMMEL, PETER | |
| | Examiner | Art Unit | |
| | Joseph S. Del Sole | 1722 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 May 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/10/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Drawings*

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because **a)** the lines, numbers and letters are not uniform, clean and well defined (of a generally poor quality) in each of the 5 figures of 5/10/04 (37 CFR 1.84(l)). Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

### *Claim Objections*

2. Claim 1 is objected to because of the following informalities: **a)** the construction of claim 1 is grammatically awkward, particularly at "and are cut into a peripheral wall as spirally turning helices and form a helical manifold extending in an outlet direction of the melt strand". Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 7 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Langos et al (6,551,089).

Langos et al teach a tool for extruding a pipe-shaped melt strand of thermoplastic material (Fig 1), the tool having

a ring-shaped nozzle (Fig 1, #24) and at least one melt conduit (Fig 1, in the region of #20) leading from an inlet opening of the tool of the outlet nozzle which extends concentrically with respect to a center axis of the tool and are cut into a peripheral wall as spirally turning helices and form a helical manifold extending in an outlet direction of the melt strand (Fig 1, the spirals formed in #18);

the helices are cut into the inner peripheral wall and into an outer peripheral wall of the at least one melt conduit (Fig 1, the spirals formed in #18);

the helices are formed in a semi-circular shape when viewed in cross section (Fig 1);

the helices cut into the inner peripheral wall and into the outer peripheral wall of the melt conduit are positioned congruently opposite each other (Fig 1);

wherein a depth of the helical decreases, starting from the inlet opening and in a direction toward the outlet nozzle (Fig 1).

5. Claims 1-2, 4, 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hippelainen (6,073,657).

Hippelainen teaches a tool for extruding a pipe-shaped melt strand of thermoplastic material (Fig 1), the tool having

a ring-shaped nozzle (Fig 1, at the top of the illustration) and at least one melt conduit leading from an inlet opening of the tool to the outlet nozzle (Fig 1, #s 1-3) which extends concentrically with respect to a center axis of the tool and are cut into a peripheral wall as spirally turning helices and form a helical manifold extending in an outlet direction of the melt strand (Fig 1, at #13);

the helices are cut into the inner peripheral wall and into an outer peripheral wall of the at least one melt conduit (Fig 1, #13);

the helices are formed in a semi-circular shape when viewed in cross section (Fig 1, #13);

the helices cut into the inner peripheral wall and into the outer peripheral wall of the melt conduit are arranged offset with respect to each other in the outlet direction (Fig 1, #13 see particularly the topmost portion of the helices);

the tool is a multilayer tool (Fig 1, due to #s 9 and 10) with a plurality of melt conduits leading to the outlet nozzle and arranged concentrically with respect to each other and with respectively associated helical manifolds, wherein the melt conduits are brought together in one location in the tool and communicate with the outlet nozzle.

6. Claims 1-3, 7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by El-Sobky (5,888,555).

El-Sobky teaches a tool for extruding a pipe-shaped melt strand of thermoplastic material (Fig 3), the tool having

a ring-shaped nozzle (Fig 3) and at least one melt conduit (Fig 3) leading from an inlet opening of the tool of the outlet nozzle which extends concentrically with respect to

a center axis of the tool and are cut into a peripheral wall as spirally turning helices and form a helical manifold extending in an outlet direction of the melt strand (Fig 3, at #15);

the helices are cut into the inner peripheral wall and into an outer peripheral wall of the at least one melt conduit (Fig 3, at #15);

the helices are formed in a semi-circular shape when viewed in cross section (Fig 3);

the helices cut into the inner peripheral wall and into the outer peripheral wall of the melt conduit are positioned congruently opposite each other (Fig 3);

wherein a depth of the helical decreases, starting from the inlet opening and in a direction toward the outlet nozzle (Fig 5).

7. Claims 1-3, 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Farrell (3,809,515).

Farrell teaches a tool for extruding a pipe-shaped melt strand of thermoplastic material (Fig 1), the tool having

a ring-shaped nozzle (Fig 1, #12) and at least one melt conduit (Fig 1, formed by #s 78, 80, 112 and 114) leading from an inlet opening of the tool to the outlet nozzle which extends concentrically with respect to a center axis of the tool and are cut into a peripheral wall as spirally turning helices and form a helical manifold extending in an outlet direction of the melt strand (Fig 1, the spirals shown within the conduits);

the helices are cut into the inner peripheral wall and into an outer peripheral wall of the at least one melt conduit (Fig 1, the spirals shown within the conduits);

the helices are formed in a semi-circular shape when viewed in cross section (Fig 1);

the helices cut into the inner peripheral wall and into the outer peripheral wall of the melt conduit are positioned congruently opposite each other (Fig 1);

wherein a depth of the helical decreases, starting from the inlet opening and in a direction toward the outlet nozzle (Fig 1);

the tool is a multilayer tool (Fig 1, due to #s 9 and 10) with a plurality of melt conduits leading to the outlet nozzle and arranged concentrically with respect to each other and with respectively associated helical manifolds, wherein the melt conduits are brought together in one location in the tool and communicate with the outlet nozzle.

8. Claims 1-2 and 4-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Mavridis (5,716,650).

Mavridis teaches a tool for extruding a pipe-shaped melt strand of thermoplastic material (Fig 1), the tool having

a ring-shaped nozzle (Fig 1, #30) and at least one melt conduit (Fig 1, formed by #s 14 and 16) leading from an inlet opening of the tool to the outlet nozzle which extends concentrically with respect to a center axis of the tool and are cut into a peripheral wall as spirally turning helices and form a helical manifold extending in an outlet direction of the melt strand (Fig 1, #s 72);

the helices are cut into the inner peripheral wall and into an outer peripheral wall of the at least one melt conduit (Fig 1, #s 72);

the helices are formed in a semi-circular shape when viewed in cross section (Fig 1);

the helices cut into the inner peripheral wall and into the outer peripheral wall of the melt conduit are arranged offset with respect to each other in the outlet direction (Fig 1, #72);

wherein a depth of the helical decreases, starting from the inlet opening and in a direction toward the outlet nozzle (Fig 1);

the tool is a multilayer tool (Fig 1, due to multiple #s 14 interacting with multiple #s 16) with a plurality of melt conduits leading to the outlet nozzle and arranged concentrically with respect to each other and with respectively associated helical manifolds, wherein the melt conduits are brought together in one location in the tool and communicate with the outlet nozzle.

9. Claims 1, 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Horiba et al (5,843,490).

Horiba et al teach a tool for extruding a pipe-shaped melt strand of thermoplastic material (Fig 8), the tool having

a ring-shaped nozzle (Fig 8, #84) and at least one melt conduit (Fig 8, extending from #85) leading from an inlet opening of the tool of the outlet nozzle which extends concentrically with respect to a center axis of the tool and are cut into a peripheral wall as spirally turning helices and form a helical manifold extending in an outlet direction of the melt strand (Fig 8, at #85);

the helices are cut into the inner peripheral wall and into an outer peripheral wall of the at least one melt conduit (Fig 8, #85);

the helices cut into the inner peripheral wall and into the outer peripheral wall of the melt conduit are arranged offset with respect to each other in the outlet direction (Fig 8);

the tool is a multilayer tool with a plurality of melt conduits leading to the outlet nozzle and arranged concentrically with respect to each other and with respectively associated helical manifolds, wherein the melt conduits are brought together in one location in the tool and communicate with the outlet nozzle (Fig 8).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 5-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hippelainen (6,073,657 in view of Matsukura et al (5,651,935).

Hippelainen teaches the apparatus as discussed above.

Hippelainen fails to teach the depth of the helices decreasing, starting from the inlet opening and in a direction toward the outlet nozzle.

Matsukura teaches a similar tubular coextruder wherein helices decrease in depth in the outward direction (Fig 1A, at #s 15a, 15b and 15c) for the purpose of introducing melt to a non-helical outlet (col 3, lines 25-57).

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention to have modified the invention of Hippelainen with depth decreasing spirals as taught by Matsukura because such enables a better melt transition flow to a non helical nozzle outlet.

14. Claims 5-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hippelainen (6,073,657 in view of Gates (5,538,411).

Hippelainen teaches the apparatus as discussed above.

Hippelainen fails to teach the depth of the helices decreasing, starting from the inlet opening and in a direction toward the outlet nozzle.

Gates teaches a similar tubular coextruder wherein helices decrease in depth in the outward direction (Fig 14) for the purpose of improving flow distribution (col 6, lines 60-67).

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention to have modified the invention of Hippelainen with depth decreasing spirals as taught by Gates because such enables improved flow distribution.

15. Claims 5-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hippelainen (6,073,657 in view of Langos et al (5,460,504).

Hippelainen teaches the apparatus as discussed above.

Hippelainen fails to teach the depth of the helices decreasing, starting from the inlet opening and in a direction toward the outlet nozzle.

Langos et al teach a similar tubular coextruder wherein helices decrease in depth in the outward direction (Fig 14) for the purpose of bringing the streams gradually over into axial streams (col 2, line 65 - col 3, line 11).

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention to have modified the invention of Hippelainen with depth decreasing spirals as taught by Langos et al because such enables the streams to be gradually brought over into axial streams (col 2, line 65 - col 3, line 11).

***References of Interest***

16. Murakami (4,185,954), Knittel (4,182,603), Sagar (5,738,881), Kirjavainen (6,450,429), Planeta et al (5,690,972), Yamada et al (5,076,776) and Iacconi (5,017,117) are cited of interest to show the state of the art.

***Correspondence***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Joseph S. Del Sole whose telephone number is (571) 272-1130. The examiner can normally be reached on Monday through Friday from 8:30 A.M. to 5:00 P.M.

If attempts to reach the Examiner by telephone are unsuccessful, Mr. Duane Smith can be reached at (571) 272-1166. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for both non-after finals and for after finals.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from the either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 886-217-9197 (toll-free).

Joseph S. Del Sole
November 18, 2005